Copy of letter dated 18th June 1925, from Alfred Dickinson and Co. London, to the Chief Electrical Engineer.

.....

SIVASAMUDRAM.

Doc. 151 G.P. 3

The details of your Electrical Engineer's proposal No.640 of the 2nd December 1924, together with drawings, all enclosed with a covering letter No.6875 from the Chief Electrical Engineer to the Mysore Government of the 25th May 1925, have been carefully considered by me.

The proposal has been prepared and presented in a commendable and comprehensive manner.

You are definitely advised to meet the increased demand for power by adding 14,000 H.P. to your existing plant at Sivasamudram Station and 10,000 H.P. at your Krishnarajasagara Station; the reconstruction of the Transmission Line from Kankanalli to the Kolar Gold Field; the increasing of the Bangalore Receiving Station to 10,000 Electrical H.P., the renovation of the Transmission Line to Mysore from the Power Station at Krishnarajasagara; I therefore only deal with the engineering proposals involved in these recommendations.

Taking first the quantity of water estimated as available by raising your dam to 124 feet level.

I have not all the information requisite to enable me to confirm your Engineer's estimate. It is, no doubt, founded on accurate information. That being so, such raising will make available 12,00 cusecs at Sivasamudram, and 1,078 cusecs at Krishnarajasagara.

The power to be made available, by ~~xx~~ increasing the storage capacity, is based on an estimated over-all efficiency of 80%. In past experience, gained in the working of your present plant, justifies that view, it is unnecessary to say more than that to secure such high efficiency, under all conditions of working, the plant must be kept in very good condition. Personally I should take the more conservative view and assume an all-round effieiency of 75%.

I am asked to state my opinion on the suggested hydraulic gradient of the two new Pipe Lines at Sivasamudram.

The Pipe Lines, having a fall of 42. feet in a length of 1,0.0 feet, are relatively short. With the number of pipes suggested the resultant hydraulic gradient is permissible. However, notwithstanding an increase in cost, my view is that an enlargement of say, two or three inches, in diameter, would give more satisfactory and reliable working results; the water velocity would be less and the turbine regulation simplified.

The gradient of the bottom length of 100 feet of the Pipe Line is rather a severe one. I suggest that at all the sharp angles the bends should be of as large a radius as possible; no doubt your Engineer will be able to arrange this with the manufacturers of the pipes.

I need hardly mention the importance of heavy anchorage, particularly where there is change of direction.

I have no reason for thinking that the proposal to raise the Dam at Sivasamudram to level 1 6 feet will, in any way, jeopardise its stability. You will appreciate the fact that to justify an unqualified endorsement would necessitate a detailed personal inspection of the existing dam. Your responsible local advisers will have thoroughly satisfied themselves on this point before making their recommendation.

To house the new plant, the proposed extension of the Power House is essential.

For the expeditious erection of the new plant, and the speedy handling of the plant for maintenance purposes, the installation of a 40 ton crane is very desirable. I have no particulars of the maximum weights to be handled. In fixing the lifting capacity of the crane at 40 tons your Engineer will have satisfied himself that the heaviest parts to be lifted do not exceed 40 tons.

The suggested new Switchgear, Cables and Busbars satisfactorily provide for the increased output.

Your Engineer, in deciding on the proposed addition to the transformer capacity, no doubt, satisfied himself that the additional transformers provide for all present and additional

~~additional numbers provide for all present and~~ additional requirements. I note that the capacity margin will be a little less when all the sets are in service, than is given by the present plant.

TRANSMISSION LINE. Very great credit is due to your Engineer for the very ingenious designs of the various types of Transmission Line supports. They should be cheap to construct and effective in service. I suggest, however, for his consideration, that a sample tower of each of the types should be constructed and tested to destruction. If found satisfactory, it will give greater confidence. Should the tests reveal faults not anticipated, the design can be amended so as to remedy any defects before the bulk of the Towers are manufactured.

I suggest, for consideration, that small cast-iron screw piles might be found more satisfactory for ground anchoring purposes that the stone blocks shewn on drawing No.K.L.F14.

ESTIMATES. In these days of rapidly fluctuating prices, it is extremely difficult to estimate with any degree of accuracy, even on plant alone. The only reliable method of which I am aware is to call for tenders for the plant needed.

In your particular instance, the matter is not so simple as in the case of entirely new plant, owing to the utilisation or adaptation of part of the existing plant.

So far as local costs are concerned, your Engineer has much more knowledge and experience than I have; it would, therefore, be presumption on my part, to criticise his estimates. As a whole, they have been carefully and well prepared. As your Engineer will be required to carry out the work within, or not exceeding, his estimate of the cost, he will have made ample provision for contingencies. I see no reason why they should not be accepted as reliable as it is possible to make them.

Your Engineer, having made no special provision for Spare Sets, is evidently of opinion that with the plant suggested, additional spares are not essential.

I apologise for the length of time taken in considering the proposals submitted. The particulars are exhaustive and required considerable labour to thoroughly understand them.